Alcatel-Lucent 1353 Litespan Management System (LMS)

Simplifying the Management of the Access Network

Alcatel·Lucent

The Alcatel-Lucent 1353 Litespan Management System (LMS) is the management component of the Litespan family, which offers cost-effective voice, data, high-speed Internet access (HSIA) and video services for your residential and business subscribers. The integrated, centrally-operated Alcatel-Lucent 1353 LMS manages the Alcatel-Lucent 1540 Litespan multiservice network.

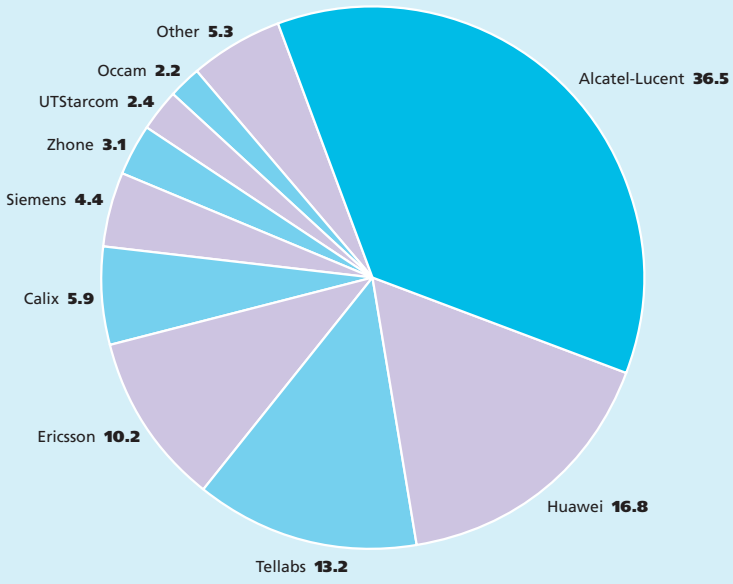
With the Alcatel-Lucent 1540 Litespan and the Alcatel-Lucent 1353 LMS, you can offer any mix of revenue-generating services. This multivendor-compatible solution supports multiple network topologies and transport options, ensuring a smooth transition from traditional voice to next-generation networking (NGN). Moreover, the Alcatel-Lucent 1353 LMS and Alcatel-Lucent 1540 Litespan are integrated and tested with other products in the Alcatel-Lucent portfolio to offer complete end-to-end NGN solutions.

Leading the Industry

The Alcatel-Lucent 1540 Litespan family has taken a leading position as an access network solution. A March 2007 study by The Windsor Oaks Group LLC reported that the Alcatel-Lucent solutions are leading the MSAP/DLC market (36.5 percent). As of March 2007, the Alcatel-Lucent 1540 family is being used by more than 70 service providers in 41 countries worldwide. More than 26 million equivalent lines have already been delivered — plain old telephone system (POTS), integrated services digital network (ISDN), leased lines and digital subscriber line (xDSL).

Alcatel-Lucent Leadership (2007)

36.5% market share worldwide



Source: broadbandtrends.com, March 2007 (The Windsor Oaks Group LLC)

Managing the Access Network

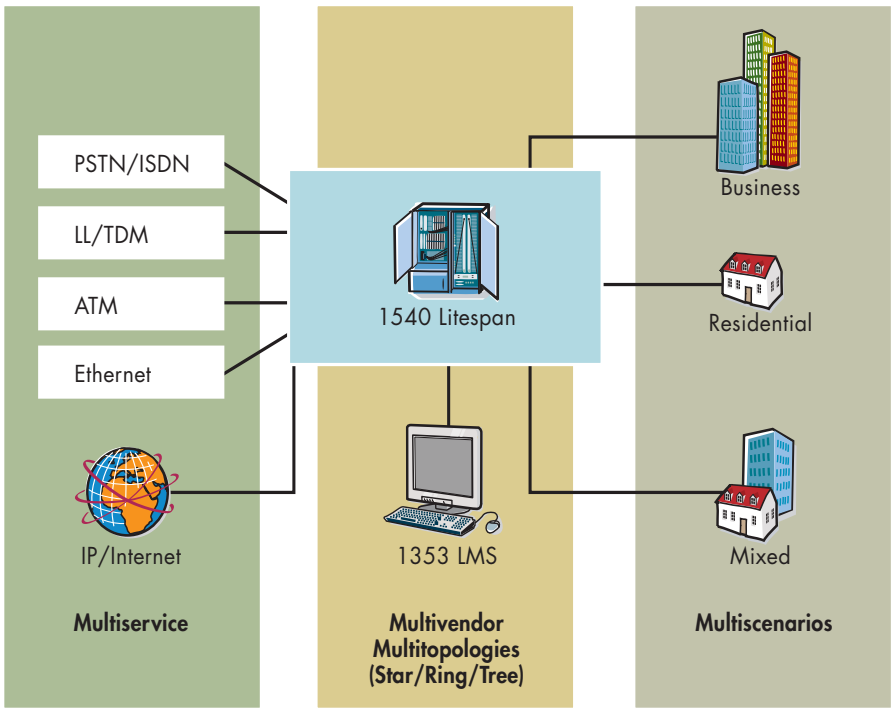
Access is the cornerstone of a telecom network. All end-user services merge in the access nodes. The types of services your end users want continue to expand as technology evolves at an unprecedented pace. As a result, your access network must be able to accept many different services, topologies, technologies and transport options. Faced with such challenges, being able to manage the access network efficiently and effectively is a vital requirement. Among other things, you need reliable management solutions — solutions that will automate network operation, administration and maintenance. What's more, these solutions must be cost-efficient, optimize operating expenses (OPEX), provide quality of service (QoS), as well as achieve stringent time-to-market objectives.

The Litespan Family

The Alcatel-Lucent 1353 Litespan Management System (LMS) is part of the Alcatel-Lucent 1540 Litespan family. Each Alcatel-Lucent 1540 Litespan includes not only the multiservice gateway platform, but also an integrated management system — the Alcatel-Lucent 1353 LMS. This system manages narrowband and broadband services, transport links, as well as subscribers for the Alcatel-Lucent 1540 Litespan Multiservice Access Gateway.

The flexible, multiservice Alcatel-Lucent 1540 Litespan solution provides basic narrowband voice and data services (using plain old telephone system [POTS], integrated services digital network [ISDN] basic access/primary rate access, voice over IP [VoIP] and digital leased lines), as well as broadband services. Services include asymmetrical digital subscriber line (ADSL) and symmetrical high bit rate DSL (SHDSL), giving users high-speed Internet surfing and multimedia downloading (see Figure 1). For all of these services, the Alcatel-Lucent 1353 LMS provides operation and maintenance functions.

Figure 1 – The Alcatel-Lucent Access Gateway for the ETSI World



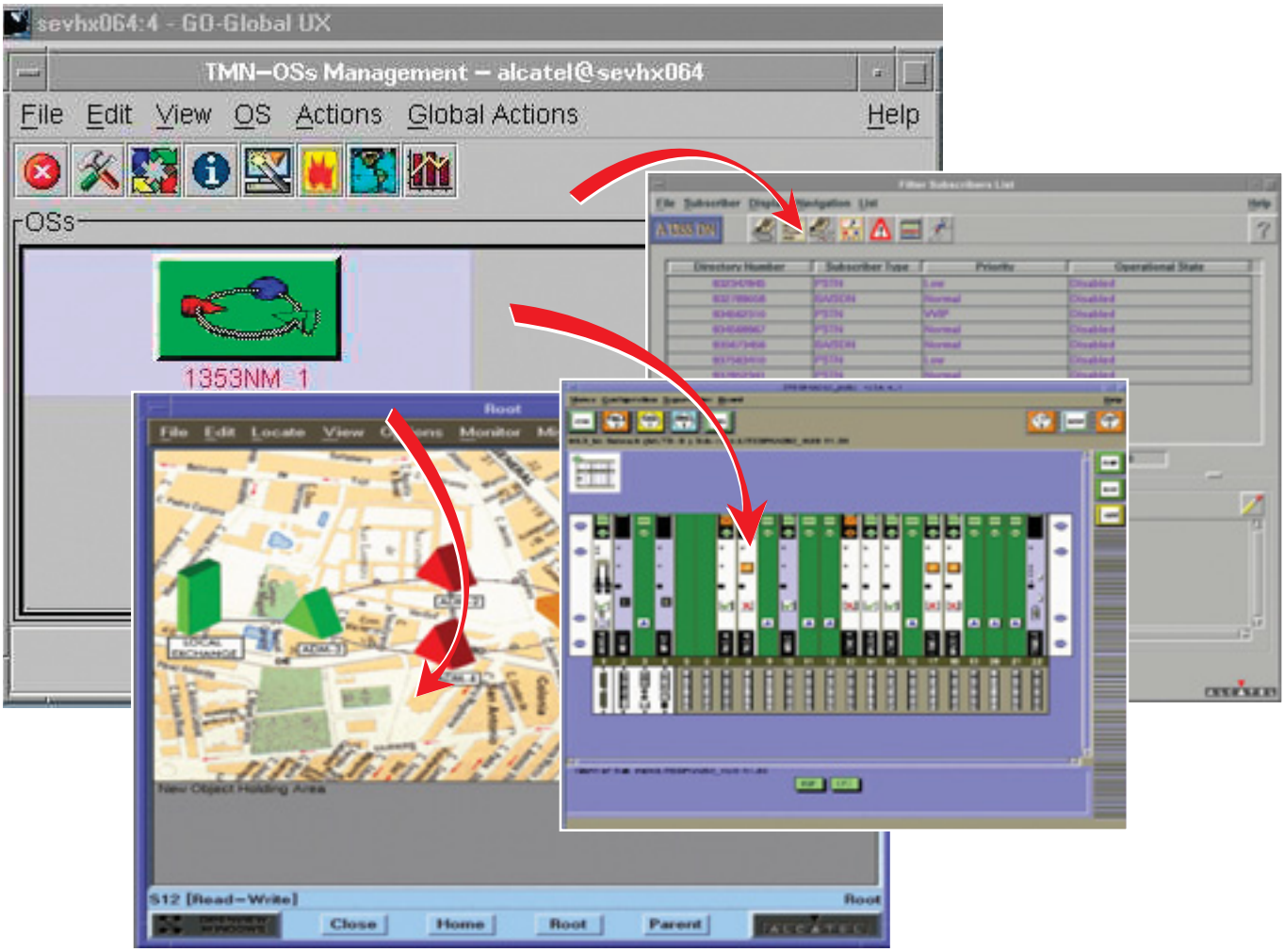
The Alcatel-Lucent 1353 Litespan Management System (LMS)

With the Alcatel-Lucent 1353 LMS, you can take advantage of a user-friendly and familiar graphical user interface (GUI) to present information related to operations, service configuration, performance, alarms and security (see Figure 2).

Like the management system for the Alcatel-Lucent Optinex family and the Alcatel-Lucent Intelligent Services Access Manager (ISAM) family, the Alcatel-Lucent 1353 LMS is based on the Alcatel-Lucent Management Platform (ALMAP). This compatibility lets you easily integrate the Alcatel-Lucent 1353 LMS with other Alcatel-Lucent management systems. That's important, because integrated network management optimizes your capital investment, reusing existing hardware to minimize equipment costs, while lowering operation and maintenance activities and training costs.

Furthermore, in networks with Alcatel-Lucent switching or transport equipment, management applications can be easily integrated. For example, alarms for all network elements appear in a single window for ease of monitoring and use. With the goal, moreover, of providing you with a complete solution, both the Alcatel-Lucent 1353 LMS and Alcatel-Lucent 1540 Litespan are integrated and tested with other Alcatel-Lucent products.

Figure 2. The Alcatel-Lucent 1353 Litespan Management System GUI



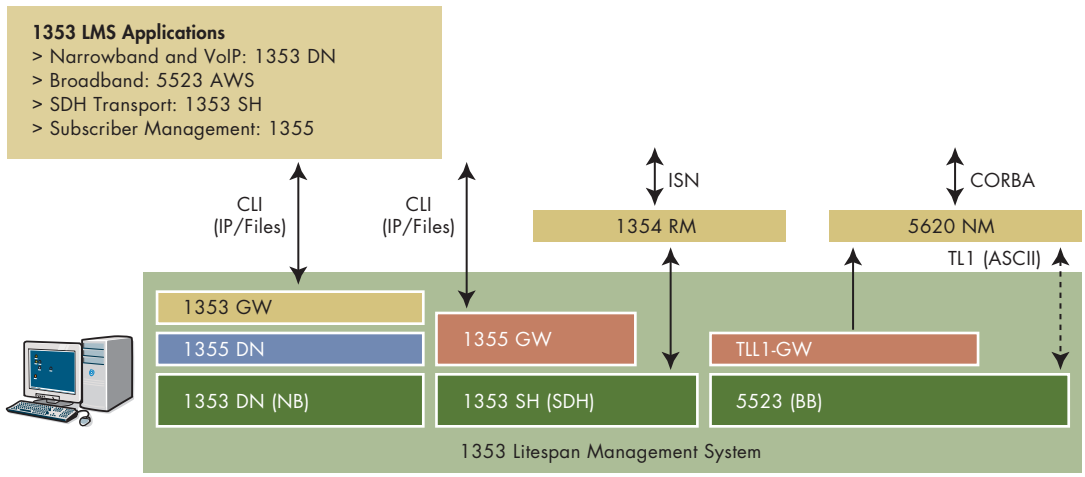
Alcatel-Lucent 1353 LMS Applications

The Alcatel-Lucent 1353 LMS functions as a network element manager, an end-to-end network manager of user services, as well as a subscriber manager. It incorporates several management applications described in Table 1 and illustrated in Figure 3. With, moreover, the Alcatel-Lucent 1353 LMS, all of your applications can run on a single server, providing a cost advantage for small networks.

Table 1. Alcatel-Lucent 1353 LMS Management Applications

APPLICATION	FUNCTION
Alcatel-Lucent 1353 Distributed Network (DN)	Element manager for voice and leased line data services delivered on the Alcatel-Lucent 1540 Litespan platform
Alcatel-Lucent 5523 ADSL Work Station (AWS)	Element manager for xDSL broadband services delivered on the Alcatel-Lucent 1540 Litespan platform
Alcatel-Lucent 1353 NM (Network Management)	Element manager for the optional integrated add-drop multiplexer (for synchronous digital hierarchy (SDH) services) in the Alcatel-Lucent 1540 Litespan
Alcatel-Lucent 1353 GW (Gateway)	Gateway application running on top of the element managers to interface with third-party operational support systems (OSSs)
Alcatel-Lucent 1355 DN	Subscriber manager for voice services delivered on the Alcatel-Lucent 1540 Litespan platform
Alcatel-Lucent 1355 GW	Gateway application running on top of the Alcatel-Lucent 1355 DN to interface with third-party OSSs

Figure 3. Alcatel-Lucent 1353 LMS Management Applications



Network Element Management Tailored to Your Needs

With Alcatel-Lucent's element managers, you control the configuration, creation and activation of services, as well as the fault and performance management, and real-time monitoring of the Alcatel-Lucent 1540 Litespan.

For its part, the Alcatel-Lucent 1353 DN network element manager controls Alcatel-Lucent 1540 Litespan narrowband services, whereas the Alcatel-Lucent 1353 NM manager controls the Alcatel-Lucent 1540 SDH transport links. xDSL services are controlled by the Alcatel-Lucent 5523 AWS. The element managers also provide an interface for integration with the network operator's existing OSS. Plus, you can run any network management application from any server in the system. And to lower your capital expenditures, our new common desktop reduces the number of servers required because several clients can share an application from any server.

SUBSCRIBER MANAGEMENT

The Alcatel-Lucent 1355 DN application provides subscriber management for the Alcatel-Lucent Litespan 1540 family access networks through subscriber administration, service activation and subscriber line testing. It is designed to support the unique requirements of your access network by including large numbers of platforms and subscribers, widespread geographic distribution and concurrent use of different technologies and services.

Feature Summary

- Network view
- Equipment configuration
- Port and termination provisioning
- Management of communication between the Alcatel-Lucent 1353 LMS and Alcatel-Lucent 1540 Litespan
- Equipment redundancy management
- Alarm collection and logging
- Alarm log consultation
- Remote inventor
- Backup/restore of network element configuration
- Remote software upgrade of network elements
- Generic management
- V5 interface and MEGACO/H.248 provisioning
- Management of leased-line interfaces (2 Mb/s, n x 64 etc.)
- Line testing
- Performance and traffic monitoring

In the same way for the Alcatel-Lucent 1355 DN — an application within the Alcatel-Lucent 1353 LMS — you can take advantage of:

- Connection management
- Massive subscriber management operations
- Subscriber/connection queries
- External subscriber creation
- Subscriber alarm
- Subscriber/connection test
- Massive and scheduled testing
- Test results management
- Open interfaces to upper management layers

Flexibility for Diverse Business Requirements

SUPPORT OF MULTIPLE TOPOLOGIES

Star, ring, tree, point-to-point and mixed topologies are all supported by the Alcatel-Lucent Litespan family. All topologies can be supervised from the Alcatel-Lucent 1353 LMS Map Manager. In all of these topologies, network management information can reach the access nodes from the Alcatel-Lucent 1353 LMS through either in-band or out-band mechanisms.

SUPPORT OF MULTIPLE TRANSPORT OPTIONS

The Alcatel-Lucent 1540 Litespan and Alcatel-Lucent 1353 LMS integrate plesiochronous digital hierarchy (PDH) or SDH transport mechanisms toward the switching and data networks. PDH, asynchronous transfer mode (ATM) and Ethernet transport capabilities are also in the system. Transport is supported between Alcatel-Lucent Litespan exchange units (EUs) and remote units (RUs) using HDSL or G.SHDSL transport protocols, fiber connections or external leased-line networks.

Equally important, broadband (xDSL) and narrowband (voice and leased-line data) traffic can share the same fiber (SDH STM-1 or STM-4). Broadband (xDSL) traffic can be routed through STM-1 optical or E3/DS3 electrical interfaces toward the ATM backbone. For its part, xDSL traffic can be redirected toward the backbone (typically IP) over Ethernet (1000Base-SX, 1000Base-LX, 1000Base-EX, 1000Base-ZX and 1000Base-TX). This increases flexibility when connecting to the IP data backbone through metro Ethernet networks. You can manage all of these transport options with the Alcatel-Lucent 1353 LMS.

Ease of Integration and High Scalability

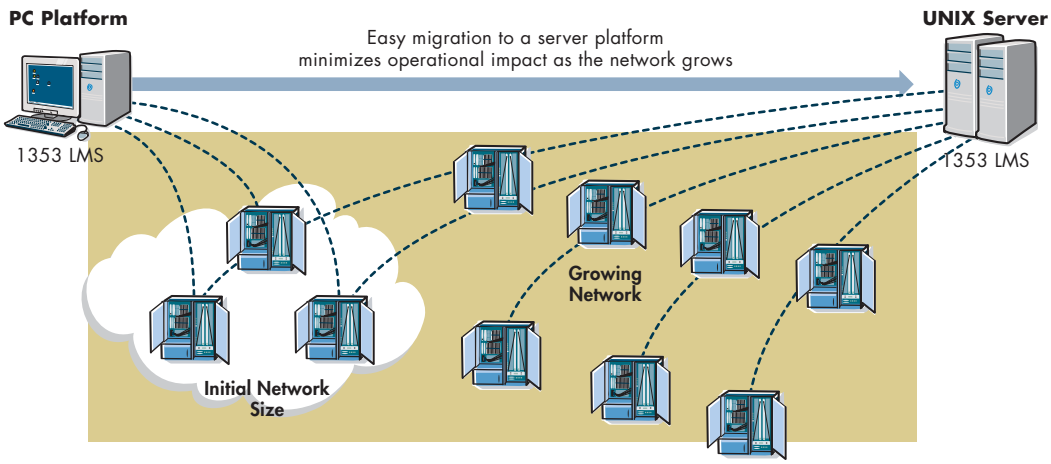
MULTIVENDOR COMPATIBILITY

The Alcatel-Lucent 1540 Litespan and Alcatel-Lucent 1353 LMS are designed to function well in multivendor environments. This open design lets you build competitive, customized solutions compatible with your existing investments and customers' needs. The integrated and centralized Alcatel-Lucent 1353 LMS also ensures changes can be made very quickly, significantly shortening time-to-revenue.

ALL SIZES OF NETWORKS

The Alcatel-Lucent Litespan family is highly scalable and suitable for any access network size — from a few nodes to hundreds of them. With its flexible architecture, you can run the Alcatel-Lucent 1353 LMS on a PC, upgrade to a small UNIX workstation, and add new servers or workstations to evolve with the growth of the Alcatel-Lucent 1540 Litespan network (see Figure 4).

Figure 4. A Network Management System Platform for Any Network Size



Reduced CAPEX and OPEX

By lowering capital and operating expenses, the Alcatel-Lucent Litespan family has a significant impact. The Alcatel-Lucent 1353 LMS fits into your OSS puzzle by satisfying four key expectations:

Network fault reduction:

- Proactive alarming
- Routing line testing
- Performance/traffic measurements and alarms crossing thresholds

Reduced customer service expenses – automating all activities for activating service and providing customer assistance through open interfaces that support:

- Service activation
- Subscriber status management
- Line and telephone set testing

Reduced maintenance costs:

- Centralizing/automating operations and maintenance (O&M) activities in the OSS, such as alarm reporting or testing for the multivendor access network
- Adapting network management functionality to your organization's and staff expertise. (The Alcatel-Lucent 1353 LMS has been designed according to the TMN model with element, network and service management levels that provide flexibility in terms of architecture and operator profiles.)
- Providing operation-driven menus, constrained checking and on-line help to avoid errors
- Properly forecasting spare stock with network inventory and alarm information

Reduced provisioning expenses:

- Exporting accurate information on network resources for correct forecasting of access network deployment and minimized number of field interventions

Choice of Operating Systems and Reliability

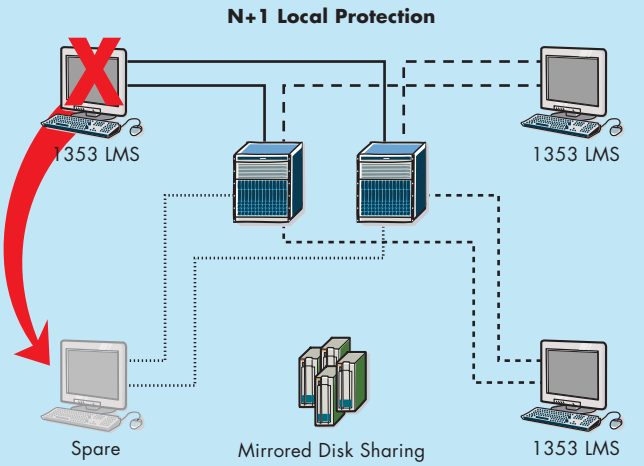
Multiple operating systems

The Alcatel-Lucent 1353 LMS is available for UNIX and Windows 2000 operating systems. UNIX servers can each support up to 3,000 network elements and 65 operators. The PC installations are ideal for managing networks with fewer than 30 nodes.

Redundant servers

System availability is enhanced through the N+1 redundancy of servers (see Figure 5). A backup server will take over the function of any server that fails in the system.

Figure 5. Overview of the High Availability OS Cluster Solution



The Alcatel-Lucent Advantage

Alcatel-Lucent offers a comprehensive portfolio of NGN products. Alcatel-Lucent provides end-to-end solutions, enabling you to deliver content to any type of user, anywhere in the world. Leveraging its long-term leadership in telecommunications network equipment as well as its expertise in applications and network services, Alcatel-Lucent enables you to focus on optimizing your service offerings and revenue streams.

As part of the Alcatel-Lucent portfolio, the Alcatel-Lucent 1540 Litespan and Alcatel-Lucent 1353 LMS have significant advantages. Alcatel-Lucent has a massive installed base of more than 300 million voice lines that can be leveraged with the Litespan family. The Alcatel-Lucent 1540 Litespan family incorporates technology from the Alcatel-Lucent DSLAM families, which represent the largest installed base of DSL worldwide. The family also incorporates technology from the Optinex family, which represents the largest installed base of SDH equipment in the world. Indeed, Alcatel-Lucent has the largest geographical coverage in the ETSI market, letting it provide turnkey solutions anywhere in Asia, Europe and the South.

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